Republic of Sierra Leone

Sierra Leone Demographic and Health Survey

2013

Preliminary Report
Without Results of HIV Prevalence

Statistics Sierra Leone
Freetown, Sierra Leone

MEASURE DHS
ICF International
Rockville, Maryland, USA

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PREFACE

The 2013 Sierra Leone Demographic and Health Survey (DHS) is the second survey of this kind to be conducted by the Government of Sierra Leone. This achievement demonstrates that the country has developed its capability to conduct large-scale surveys at regular intervals, thus allowing for comparisons over time and across other sub-Saharan countries.

The timeliness of these surveys is critical to monitor and evaluate the achievement of the goals and targets established within national and international development frameworks, such as the Millennium Development Goals, the Poverty Reduction Strategy Papers, and Sierra Leone's Agenda for Change. In view of these data needs, the results presented in this preliminary DHS report represent a valuable tool to assess progress that the country has made in the last few years and to set benchmarks for the assessment of Sierra Leone's Agenda for Prosperity.

This preliminary report presents some key findings of the 2013 SLDHS, carried out by Statistics Sierra Leone (SSL) in collaboration with the Ministry of Health and Sanitation (MoHS). The Government of Sierra Leone provided funding for the survey, which included human resources, materials, office equipment, and logistical support. Additional funding for the survey was provided by the UK Department for International Development (DfID), United Nations Population Fund (UNFPA), World Bank, United Nations Development Programme (UNDP), World Health Organization (WHO), Food and Agricultural Organization (FAO), World Food Programme (WFP), United Nations Children's Fund (UNICEF), and KfW Development Bank (KfW). ICF International provided technical assistance and medical supplies and equipment for the survey through the MEASURE DHS Program. The UN Country Team also provided some backstopping support in field monitoring and quality control.

The 2013 SLDHS is a nationally representative sample for which 12,629 households, 16,658 women age 15-49, and 7,262 men age 15-59 were successfully interviewed. This sample provided estimates for Sierra Leone as a whole, for urban and rural areas, and, for most indicators, estimates for the four regions and the fourteen administrative districts.

The survey provides current data on fertility trends, family planning, maternal and child health, childhood mortality, nutrition and child feeding practices, adult and maternal mortality, female genital cutting, HIV/AIDS-related knowledge and behavior, and other important health issues.

Mohamed King Koroma
Statistician General

1   INTRODUCTION

1.1   Background

The 2013 Sierra Leone Demographic and Health Survey (SLDHS) is the second survey conducted in Sierra Leone under the auspices of the worldwide Demographic and Health Surveys Program. This preliminary publication presents the main findings of the 2013 SLDHS. These preliminary results were prepared three months after completion of data collection to make them available in family planning and other public health interventions. The final report on the 2013 SLDHS is expected to be published in mid-2014 and will include a more comprehensive description of the survey results. The results presented here are provisional and may be subject to slight modifications. However, the final figures are not expected to differ significantly from the findings presented in this report.

1.2   Objectives of the Survey

The primary objective of the SLDHS is to provide reliable estimates of health and demographic indicators in the areas of fertility, mortality, family planning, maternal and child health, nutrition, malaria, and HIV/AIDS, which can be used by program managers and policy makers to evaluate and improve existing programs or to develop new ones. In addition, the SLDHS data will be useful to researchers and scholars interested in analyzing current situations and trends in the Sierra Leonean population, as well as those conducting comparative, regional, or cross-national studies.

2   METHODOLOGY

2.1   Survey Instruments

The 2013 SLDHS used three questionnaires, namely, a Household Questionnaire, a Woman's Questionnaire, and a Man's Questionnaire. These questionnaires were based on the models developed by the MEASURE DHS program, but additions and modifications were made to the model questionnaires to adapt them to specific situations and the lexicon of Sierra Leone.

The Household Questionnaire was used to list all usual household members as well as the nonmembers who spent the night preceding the interview in the selected households. Information was obtained on relationship to the head of the household and age, sex, and educational attainment of every individual age 5 or older listed for the household. In addition, several questions were included to determine the physical characteristics of the dwelling, such as source of water, presence of sanitation facilities, and availability of durable goods. The Household Questionnaire was also used to identify individuals eligible for the individual interview, that is, women age 15-49 and men age 15-59. In addition, the Household Questionnaire was used to select individuals for the collection of key biomarkers. For biomarker collection, in 50 percent of selected households:

- All eligible women (age 15-49 years) were measured, weighed, and tested for anemia and HIV

- All eligible men (age 15-59) were measured, weighed, and tested for anemia and HIV

- All children age 0 to 59 months were measured and weighed

- All children age 6 to 59 months were measured, weighed, and tested for anemia and malaria

To test eligible respondents for HIV, blood samples in the form of dry blood spots (DBS) were collected onto filter paper cards, on which a unique barcode label was fixed for identification purposes. Matching barcode labels were fixed on the Household Questionnaires on the spaces corresponding with the individuals being tested. These samples were transmitted to the Central Public Health Reference Laboratory (CPHRL) in Freetown for testing. Because of ethical considerations, the testing of DBS

samples only started after all the questionnaires were keyed-in and the identifiers scrambled, so the results of these tests will be presented in a separate report.

The Woman's Questionnaire was administered to women age 15 to 49 in 100 percent of the sample; it collected information from the woman's perspective on the following topics:

- Background characteristics
- Birth history
- Knowledge, attitudes, and practice of family planning as well as exposure to family planning messages
- Maternal health, including antenatal, delivery, and postnatal care
- Immunization and health of children under age 5
- Breastfeeding and infant feeding practices
- Marriage, sexual activity, and husband's background characteristics
- Fertility preferences
- Employment
- Knowledge of AIDS and sexually transmitted infections (STIs)
- Maternal mortality
- Female genital cutting
- Domestic violence

Also, a monthly calendar was filled to obtain information on births, pregnancies, and contraceptive use and discontinuation during the five years prior to the survey. This approach was used to ensure there were no omissions or inconsistencies in the respondents' recent reproductive history.

The Man's Questionnaire was administered to men age 15 to 59 in 50 percent of the sample; it collected information from the man's perspective on the following topics:

- Background characteristics
- Reproduction
- Knowledge and attitudes related to family planning and exposure to family planning messages
- Marriage and sexual activity
- Fertility preferences
- Employment and gender roles
- Knowledge of HIV/AIDS and sexually transmitted infections (STIs)
- Miscellaneous health issues, including male circumcision
- Domestic violence

2.2   Sample Design and Implementation

Administratively, Sierra Leone is divided into four regions, and each region is divided into districts, for a total of four regions and fourteen districts in the country. An Enumeration Area (EA) is a geographic section delineated so that a team of enumerators could easily cover it during a census. In the case of Sierra Leone, an EA can be a section of an urban area, a village, a cluster of small villages, or a part of a large village.

The 2013 SLDHS sample was designed to produce reliable estimates of most important variables for the country as a whole, for urban and rural areas, and for the four regions and the fourteen districts. The sampling frame used for the 2013 SLDHS is the latest population and housing census, conducted in Sierra Leone in 2004. The frame excluded the population living in collective housing units, such as hotels, hospitals, work camps, prisons, or boarding schools.

The sample for the 2013 SLDHS was a stratified sample selected in two stages. Stratification was done by dividing each domain into urban and rural areas, achieving a total of 27 sampling strata. In the first stage, 435 EAs were selected with probability proportional to size and with independent selection in each sampling stratum. These EAs constitute the primary sampling units (PSUs).

In the second stage of selection, 30 households per EA were selected with an equal probability systematic selection. In these selected households, all women age 15-49 who were usual household members or who spent the night before the survey in the selected households were eligible for individual interviews. A 50 percent subsample of the households was selected for the male survey and for the collection of blood samples for HIV and anemia testing. In this subsample, all men age 15-59 who were usual household members or who spent the night before the survey in the selected households were eligible for individual interviews. The results of the sampling are presented in Table 1. A total of 13,006 households were selected for the sample, of which 12,724 were occupied at the time of fieldwork, and 12,629, or 99 percent, were successfully interviewed. In these households, 17,132 women age 15-49 that had spent the preceding night in the household were identified, and 16,658 of them were successfully interviewed, yielding a 97 percent response rate. Of the 7,537 eligible men identified in the 50 percent subsample of households, 96 percent were successfully interviewed.

Table 1 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Sierra Leone 2013

	Residence		
Result	Urban	Rural	Total
Household interviews			
Households selected	4,739	8,267	13,006
Households occupied	4,623	8,101	12,724
Households interviewed	4,569	8,060	12,629
Household response rate[1]	98.8	99.5	99.3
Interviews with women age 15-49			
Number of eligible women	6,996	10,136	17,132
Number of eligible women interviewed	6,773	9,885	16,658
Eligible women response rate[2]	96.8	97.5	97.2
Interviews with men age 15-59			
Number of eligible men	3,137	4,400	7,537
Number of eligible men interviewed	2,980	4,282	7,262
Eligible men response rate[2]	95.0	97.3	96.4

[1] Households interviewed/households occupied
[2] Respondents interviewed/eligible respondents

2.3   Training and Pretest

All field personnel were trained for the pretest for four weeks at SSL's central office between May and June 2013, in Freetown. After the training, pretest fieldwork was conducted over a one-week period in two urban clusters and two rural clusters. Even though more than 120 men and women received training, only 10 of them were selected for the pretest exercise itself.

As part of the pretest, health technicians practiced weighing and measuring men, women, and children as well as collecting and handling blood samples for anemia and HIV testing. The training course consisted of instructions regarding interviewing techniques and field procedures, a detailed review of items on the questionnaires, instruction and practice in weighing and measuring children and in the collection of blood samples, mock interviews between participants in the classroom, and practice interviews. A two-week refresher training class was conducted between May and June 2013, prior to launching the fieldwork.

2.4   Data Collection and Processing

Altogether 24 field teams were formed, each consisting of one supervisor, one field editor, one health technician, two female interviewers, and one male interviewer. Each team was provided with a vehicle. Fieldwork was launched in June 2013 and was completed in October 2013. After a few weeks of fieldwork, the SSL restructured the field personnel and reduced the number of teams from the initial 24 to 18.

The field editors first checked the questionnaires for completeness and consistency in the field. The questionnaires were then sent to the SSL central office in Freetown where office editors reviewed them again and manually recorded the codes to the few questions without precoded answers. The data were processed using CSPro (Census and Survey Processing computer package). Data entry and editing were initiated almost immediately after the beginning of fieldwork. Data processing, consisting of editing, data entry, 100 percent double entry, final editing, and verification, was completed in November 2013.

3   PRELIMINARY RESULTS

3.1   Respondents' Characteristics

The percent distribution of interviewed men and women by selected background characteristics is presented in Table 2. Reflecting the high fertility and youth of Sierra Leonean people, the population of reproductive age is very young. More than half of the interviewed men and women are younger than age 30, while less than 10 percent of them are in the 45-49 age group. Close to 80 percent of respondents were Muslims, and around 20 percent identified themselves as Christians. Interestingly, very few Sierra Leoneans declared they did not have a religious affiliation. The two largest ethnic groups are the Mende and Temne, each representing around one-third of the population of reproductive age.

Table 2 Background characteristics of respondents

Percent distribution of women and men age 15-49, by selected background characteristics, Sierra Leone 2013

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	23.3	3,878	4,051	22.4	1,475	1,526
20-24	16.1	2,683	2,688	15.3	1,007	1,018
25-29	17.1	2,843	2,731	15.5	1,017	996
30-34	13.7	2,287	2,236	12.2	804	769
35-39	13.6	2,260	2,266	14.6	961	930
40-44	8.2	1,362	1,321	10.5	690	695
45-49	8.1	1,344	1,365	9.6	629	643
Religion						
Christian	21.2	3,527	3,687	19.9	1,312	1,350
Islam	78.2	13,032	12,878	79.6	5,242	5,202
Other	0.2	41	44	0.2	16	13
None	0.1	12	10	0.1	4	4
Missing	0.3	46	39	0.1	7	8

Continued…

Table 2—*Continued*

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Ethnic group						
Creole	1.1	191	148	1.4	91	73
Fullah	3.2	530	582	3.8	252	275
Kono	4.5	752	848	3.9	260	303
Limba	6.6	1,104	1,150	5.9	391	404
Loko	2.9	487	415	2.7	178	150
Mandingo	2.3	382	471	2.5	166	200
Mende	33.4	5,558	5,648	32.8	2,158	2,157
Sherbro	2.4	407	430	3.0	198	210
Temne	35.3	5,885	5,424	36.1	2,375	2,222
Koranho	2.9	482	626	2.6	173	216
Other Sierra Leone	4.8	793	818	4.5	299	325
Other Foreign	0.3	52	66	0.4	29	27
Missing	0.2	33	32	0.2	12	15
Marital status						
Never married	28.4	4,730	4,911	43.3	2,849	2,861
Married	62.6	10,430	10,308	49.6	3,264	3,282
Living together	2.8	473	446	3.8	250	208
Divorced/separated	3.6	605	576	2.9	190	197
Widowed	2.5	420	417	0.4	30	29
Residence						
Urban	35.6	5,933	6,773	38.1	2,508	2,755
Rural	64.4	10,725	9,885	61.9	4,073	3,822
Region						
Eastern	21.7	3,614	3,369	21.9	1,442	1,337
Northern	37.8	6,292	6,231	34.9	2,300	2,327
Southern	21.1	3,514	4,354	21.5	1,414	1,742
Western	19.4	3,238	2,704	21.7	1,425	1,171
District						
Kailahun	5.9	984	952	5.6	371	351
Kenema	9.9	1,651	1,153	10.9	719	517
Kono	5.9	979	1,264	5.4	352	469
Bombali	8.3	1,377	1,288	7.6	499	462
Kambia	4.4	738	1,264	4.1	270	473
Koinadugu	4.3	719	1,100	4.1	268	432
Port Loko	12.0	1,994	1,424	10.3	679	491
Tonkolili	8.8	1,464	1,155	8.9	584	469
Bo	8.4	1,398	1,517	8.1	533	583
Bonthe	4.1	678	981	4.3	283	389
Moyamba	5.1	843	959	5.6	368	427
Pujehun	3.6	595	897	3.5	230	343
Western Rural	3.2	528	1,209	3.5	230	503
Western Urban	16.3	2,710	1,495	18.2	1,195	668
Education						
No education	55.8	9,293	9,140	40.3	2,651	2,614
Primary	14.0	2,331	2,278	12.5	825	819
Secondary or higher	30.2	5,034	5,240	47.2	3,106	3,144
Wealth quintile						
Lowest	18.5	3,089	3,035	18.5	1,218	1,221
Second	18.3	3,046	2,781	17.9	1,175	1,083
Middle	18.8	3,140	2,999	18.2	1,195	1,147
Fourth	20.3	3,388	3,998	18.0	1,183	1,443
Highest	24.0	3,994	3,845	27.5	1,811	1,683
Total 15-49	100.0	16,658	16,658	100.0	6,582	6,577
Men 50-59	0.0	0	0	0.0	680	685
Total 15-59	0.0	0	0	0.0	7,262	7,262

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.
na = Not applicable

Twenty-eight percent of the women and 43 percent of the men were single, and, conversely, 63 percent of women and 50 percent of men were married. Consensual unions are relatively rare: only 3 percent of women and 4 percent of men lived in unions outside marriage.

Table 2 shows that 56 percent of women and 40 percent of men never attended school; 14 percent of women and 13 percent of men attended primary school, while 30 percent of women and 47 percent of men reached or passed secondary school or beyond.

3.2   Fertility

All women who were interviewed in the 2013 SLDHS gave a complete reproductive history, including the total number of children born alive, and the sex, date of birth, and survival status of each child. For children who had died at the time of the survey, respondents were asked the child's age at death. In addition to information on all live births, women were asked probing questions to obtain information to complete a calendar covering their reproductive history in the five years preceding the survey, that is, from January 2008 onward. These questions allowed interviewers to identify pregnancies that may not have resulted in live births due to induced abortions, miscarriages, or stillbirths in the five years preceding the survey.

The data collected in the birth history were used to calculate age-specific fertility rates and the total fertility rate (TFR), two of the most commonly used measures of current fertility. The TFR is a summary measurement of fertility and can be interpreted as the average number of children women of reproductive age would bear in their lifetime if the current age-specific fertility rates were to remain unchanged.

Table 3 shows that the TFR for the three-year period before the survey is 4.9 for the country as a whole, 5.7 in rural areas, and 3.5 in urban areas. This means that if current fertility levels remain constant, Sierra Leonean women will have five children on average at the end of their reproductive lives, and in rural areas women will have on average two children more than urban women.

Table 3 and Figure 1 show that age-specific fertility rates start relatively high among women age 15-19 (125 per 1,000), indicating an early age of initiation of fertility, especially in rural areas, where the fertility rate in the 15-19 age group is 155 per 1,000. In rural areas the fertility peaks in the 20-24 age group (257 per thousand), whereas urban areas show a slightly delayed peak in fertility, in the 25-29 age group (168 per 1,000). Age-specific fertility rates remain consistently higher in rural areas throughout the childbearing years.

Table 3 Current Fertility

Age-specific rates and total fertility rate, the general fertility rate, and the crude birth rate for the three years preceding the survey, by residence, Sierra Leone 2013

| Age group | Residence | | Total |
	Urban	Rural	
15-19	82	155	125
20-24	155	257	215
25-29	168	248	222
30-34	134	206	183
35-39	91	161	140
40-44	43	75	64
45-49	18	37	32
TFR (15-49)	3.5	5.7	4.9
GFR	119	198	169
CBR	29.5	38.2	35.7

Notes: Age-specific fertility rates are per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation. Rates are for the period 1-36 months prior to interview.
TFR: Total fertility rate expressed per woman
GFR: General fertility rate expressed per 1,000 women age 15-44
CBR: Crude birth rate, expressed per 1,000 population

The general fertility rate (GFR), and the crude birth rate (CBR) are also presented in Table 3. The GFR is the estimated annual number of births per 1,000 women age 15-44, and the CBR refers to the total number of births occurring in a given year per 1,000 population. The GFR is 169 births per 1,000 women age 15-44 years, and the CBR is 36 births per 1,000 population.

Figure 1 Age-specific fertility rates by area of residence
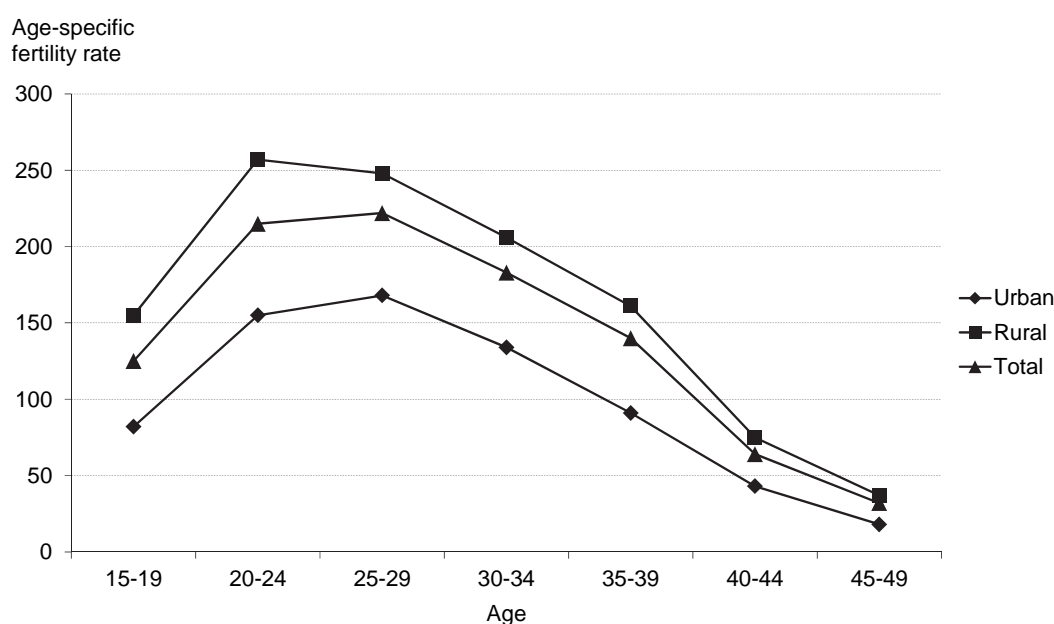
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3.3   Fertility Preferences

To gain insight into the childbearing aspirations of Sierra Leoneans, men and women who were not sterilized were asked whether they wanted or did not want to have another child. Those who said that they wanted another child were asked how long they wanted to wait to have that child. Table 4 shows that more than 60 percent of women wanted to have a child or another child; 24 percent wanted a child soon, 35 percent wanted a child but would prefer to wait at least two years, and 4 percent wanted a child but were undecided about the timing. On the other hand, one married women out of four (26 percent) said she does not want to have any more children.

Table 4 Fertility preferences by number of living children

Percent distribution of currently married women age 15-49 by desire for children, according to number of living children, Sierra Leone 2013

| Desire for children | Number of living children[1] | | | | | | | Total |
	0	1	2	3	4	5	6+	
Have another soon[2]	74.7	37.1	30.3	21.4	15.7	10.3	4.6	24.0
Have another later[3]	9.1	48.9	47.7	41.3	32.7	23.0	9.6	34.5
Have another, undecided when	4.5	5.1	4.3	3.1	3.5	2.4	2.5	3.6
Undecided	6.6	3.7	6.5	8.9	11.3	10.6	7.2	7.9
Want no more	0.9	2.0	7.9	21.1	33.5	48.9	69.1	25.8
Sterilized[4]	0.0	0.0	0.2	0.2	0.4	0.7	2.1	0.5
Declare infecund	4.3	2.2	2.1	3.3	2.6	3.6	4.2	3.0
Missing	0.0	0.9	1.0	0.6	0.4	0.6	0.7	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	574	1,721	2,141	2,041	1,723	1,328	1,375	10,903

[1] The number of living children includes current pregnancy.
[2] Wants next birth within 2 years
[3] Wants to delay next birth for 2 or more years
[4] Includes both female and male sterilization

The desire to limit fertility markedly increases with the number of living children. The percentage of women that do not want any more children increases from 2 percent among women that have only one child to 34 percent among women with four children and 69 percent among women with six or more children. However, the fact that close to 20 percent of married women with six or more children still want

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another child (5 percent of them soon and 10 percent of them later, 3 percent undecided on the timing), underscores the preference for large families among Sierra Leonean women.

3.4 Current Use of Family Planning

Contraceptive prevalence in Sierra Leone is very low. Table 5 shows that only 17 percent of currently married women use a contraceptive method of any kind, and 16 percent use a modern method. The prevalence of modern contraception is twice as high in urban areas as in rural areas (25 percent compared with 12 percent, respectively). The Western Region, where the largest urban conglomeration in the country is located, shows the highest modern contraceptive prevalence, at 25 percent, whereas the Northern region shows the lowest prevalence, at 12 percent.

Women with secondary or higher education were much more likely to use a modern contraceptive method: 25 percent of them used a modern method, compared with 19 percent of women who only reached primary school and 13 percent of those with no education. The most commonly used methods among married women were Depo-Provera injections, favored by 8 percent, contraceptive pills, used by 4 percent, and implants, used by 2 percent. Less than 1 percent uses female sterilization, and male sterilization is practically non-existent as a method. One percent uses a traditional method, including withdrawal, periodic abstinence, or some folkloric traditional method.

Table 5 Current use of contraception by background characteristics

Percent distribution of currently married women age 15-49 by contraceptive method currently used, according to background characteristics, Sierra Leone 2013

Background characteristic	Any method	Any modern method	Modern method											Traditional method				Not currently using	Total	Number of women
			Female sterilization	Male sterilization	Pill	IUD	Inject-ables	Implants	Male condom	Dia-phragm	LAM	Other	Any tradi-tional method	Rhythm	With-drawal	Other			
Age																			
15-19	7.8	7.8	0.0	0.0	1.0	0.2	3.3	0.8	0.4	0.0	1.9	0.0	0.0	0.0	0.0	0.0	92.2	100.0	729
20-24	14.2	13.6	0.0	0.0	2.8	0.2	7.0	2.3	0.3	0.0	1.0	0.0	0.5	0.0	0.2	0.3	85.8	100.0	1,570
25-29	15.8	15.2	0.0	0.0	3.9	0.2	7.3	2.6	0.3	0.0	0.9	0.0	0.6	0.0	0.1	0.6	84.2	100.0	2,323
30-34	20.9	20.1	0.2	0.0	5.9	0.0	9.2	3.4	0.3	0.0	0.8	0.0	0.8	0.0	0.1	0.7	79.1	100.0	2,033
35-39	19.7	18.2	0.6	0.0	4.4	0.0	9.4	2.7	0.1	0.1	0.7	0.0	1.4	0.0	0.0	1.4	80.3	100.0	1,974
40-44	18.2	16.5	1.3	0.0	4.3	0.1	7.4	2.6	0.1	0.0	0.8	0.0	1.7	0.0	0.2	1.5	81.8	100.0	1,170
45-49	12.8	10.5	1.6	0.0	2.1	0.1	5.1	0.9	0.0	0.0	0.7	0.1	2.3	0.5	0.0	1.8	87.2	100.0	1,103
Residence																			
Urban	26.6	24.7	0.7	0.0	6.7	0.2	11.6	4.4	0.5	0.0	0.6	0.0	1.9	0.2	0.3	1.4	73.4	100.0	2,923
Rural	13.0	12.3	0.4	0.0	2.8	0.1	6.0	1.7	0.1	0.0	1.0	0.0	0.7	0.0	0.0	0.7	87.0	100.0	7,980
Region																			
Eastern	17.3	16.6	0.3	0.0	6.7	0.0	6.7	2.3	0.3	0.1	0.2	0.0	0.8	0.0	0.0	0.8	82.7	100.0	2,558
Northern	12.3	11.4	0.6	0.0	1.1	0.2	6.1	1.2	0.1	0.0	2.1	0.0	0.9	0.0	0.0	0.9	87.7	100.0	4,399
Southern	17.2	16.3	0.5	0.0	4.3	0.0	8.1	3.2	0.1	0.0	0.0	0.1	0.9	0.0	0.0	0.9	82.8	100.0	2,434
Western	27.1	25.0	0.2	0.0	6.5	0.2	12.1	5.1	0.6	0.0	0.2	0.1	2.1	0.4	0.5	1.2	72.9	100.0	1,512
District																			
Kailahun	21.3	21.1	0.4	0.0	11.0	0.0	6.5	2.3	0.4	0.3	0.2	0.0	0.2	0.0	0.0	0.2	78.7	100.0	760
Kenema	17.2	16.0	0.4	0.0	6.2	0.0	6.5	2.3	0.5	0.0	0.2	0.0	1.2	0.0	0.0	1.2	82.8	100.0	1,161
Kono	12.9	12.2	0.0	0.0	2.4	0.1	7.4	2.3	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.7	87.1	100.0	637
Bombali	14.3	13.6	2.4	0.0	0.9	0.2	8.4	0.9	0.5	0.0	0.8	0.0	0.6	0.0	0.1	0.5	85.7	100.0	805
Kambia	5.4	5.4	0.0	0.0	0.4	0.1	2.3	0.9	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	94.6	100.0	563
Koinadugu	6.5	6.3	0.2	0.0	0.7	0.5	2.4	1.4	0.0	0.0	1.2	0.0	0.2	0.0	0.0	0.2	93.5	100.0	547
Port Loko	13.7	12.5	0.2	0.0	1.3	0.3	6.7	1.0	0.2	0.0	3.3	0.0	1.3	0.0	0.0	1.3	86.3	100.0	1,456
Tonkolili	15.5	14.2	0.4	0.2	1.7	0.3	7.5	1.7	0.2	0.0	2.1	0.0	1.4	0.0	0.0	1.4	84.5	100.0	1,027
Bo	19.3	19.1	0.2	0.0	6.6	0.1	8.7	3.3	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.2	80.7	100.0	933
Bonthe	20.5	18.0	0.1	0.0	1.4	0.1	9.8	6.2	0.4	0.0	0.0	0.0	2.5	0.0	0.0	2.5	79.5	100.0	418
Moyamba	9.9	9.3	0.6	0.0	1.4	0.0	6.2	0.9	0.1	0.0	0.0	0.2	0.7	0.0	0.0	0.7	90.1	100.0	632
Pujehun	20.1	19.0	1.4	0.0	6.4	0.0	7.7	3.4	0.0	0.0	0.0	0.0	1.1	0.1	0.0	1.0	79.9	100.0	452
Western Rural	24.1	23.0	0.3	0.0	3.4	0.6	13.6	4.2	0.2	0.0	0.2	0.4	1.0	0.0	0.2	0.9	75.9	100.0	305
Western Urban	27.9	25.5	0.2	0.0	7.3	0.1	11.8	5.4	0.7	0.0	0.1	0.0	2.4	0.4	0.6	1.3	72.1	100.0	1,207
Education																			
No education	14.3	13.2	0.4	0.0	3.3	0.1	6.5	1.8	0.1	0.0	0.8	0.0	1.1	0.0	0.0	1.1	85.7	100.0	7,870
Primary	19.3	18.9	0.8	0.0	4.2	0.1	9.7	2.9	0.1	0.0	1.2	0.0	0.3	0.0	0.0	0.3	80.7	100.0	1,426
Secondary or higher	26.0	24.6	0.3	0.0	6.7	0.3	10.3	5.0	1.2	0.0	0.8	0.0	1.3	0.3	0.5	0.5	74.0	100.0	1,607
Wealth quintile																			
Lowest	12.5	11.5	0.2	0.0	2.5	0.1	5.3	1.6	0.2	0.1	1.5	0.0	1.0	0.0	0.0	1.0	87.5	100.0	2,341
Second	12.1	11.5	0.4	0.0	2.9	0.1	5.9	1.1	0.1	0.0	1.0	0.0	0.6	0.0	0.0	0.6	87.9	100.0	2,323
Middle	12.8	12.1	0.3	0.1	3.2	0.0	6.0	2.0	0.1	0.0	0.4	0.0	0.7	0.0	0.0	0.7	87.2	100.0	2,307
Fourth	20.4	19.2	0.7	0.0	4.3	0.2	9.5	3.4	0.2	0.0	0.9	0.1	1.2	0.0	0.0	1.2	79.6	100.0	2,087
Highest	28.1	26.3	0.8	0.0	7.2	0.2	12.1	4.6	0.8	0.0	0.5	0.0	1.8	0.3	0.5	1.0	71.9	100.0	1,845
Number of living children																			
0	5.0	4.8	0.0	0.0	1.0	0.3	1.9	1.3	0.3	0.0	0.0	0.0	0.2	0.0	0.1	0.1	95.0	100.0	830
1-2	14.4	13.8	0.1	0.0	3.8	0.1	6.5	2.1	0.4	0.0	0.8	0.0	0.5	0.0	0.1	0.4	85.6	100.0	3,808
3-4	18.7	17.6	0.3	0.0	4.6	0.2	8.6	2.7	0.1	0.0	1.1	0.0	1.1	0.2	0.1	0.9	81.3	100.0	3,734
5+	20.8	18.9	1.4	0.1	3.9	0.0	9.3	2.9	0.1	0.0	1.1	0.1	1.9	0.0	0.0	1.9	79.2	100.0	2,531
Total	16.6	15.6	0.5	0.0	3.9	0.1	7.5	2.4	0.2	0.0	0.9	0.0	1.0	0.1	0.1	0.9	83.4	100.0	10,903

Note: If more than one method is used, only the most effective method is considered in this tabulation.
LAM = Lactational amenorrhea method

3.5   Early Childhood Mortality

Estimates of childhood mortality are based on information from the birth history of the questionnaire administered to individual women. Those questions capture the aggregate childbearing experience of respondents, namely the number of children born alive, sex and date of birth of each child, and age at death of the children that died. This information is used to calculate the number of children/years of exposure during a given period and the number of children that died during the same period. Knowing these values it is possible to directly estimate the following five mortality rates:

- Neonatal mortality (NN): the probability of dying within the first month of life
- Postneonatal mortality (PNN): the difference between infant and neonatal mortality
- Infant mortality ($_1q_0$): the probability of dying before the first birthday
- Child mortality ($_4q_1$): the probability of dying between the first and fifth birthday
- Under-5 mortality ($_5q_0$): the probability of dying between birth and the fifth birthday

Table 6 presents early childhood mortality rates for five-year periods during the 15 years preceding the survey. These periods correspond roughly to 1999 to 2013. These rates are expressed per 1,000 live births, except for child mortality ($_4q_1$), which is expressed per 1,000 children surviving their first year of life.

The under-five mortality for the period 0-4 years before the survey, which corresponds approximately to the calendar years 2009-2013, is 156 deaths per 1,000 births. Following the usual pattern, most of the early childhood mortality occurs in the first year of life; infant mortality is 92 deaths per 1,000 births, while mortality between the first and the fifth birthday is 70 deaths per 1,000. Neonatal mortality (mortality during the first month) is lower than postneonatal mortality (39 deaths per 1,000 compared with 54 deaths per 1,000), representing 42 percent of the overall infant mortality.

Mortality shows a downward trend. Infant mortality decreased from 152 deaths per 1,000 births in the 10-14 years before the survey (1999-2003) to 127 in the 5-9 years before the survey (2004-2008) and 92 in the 0-4 years before the survey (2009 -2013).

Table 6 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under-five mortality rates for five-year periods preceding the survey, Sierra Leone 2013

Years preceding the survey	Neonatal mortality (NN)	Post-neonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-five mortality ($_5q_0$)
0-4	39	54	92	70	156
5-9	46	81	127	77	194
10-14	48	104	152	89	227

[1] Computed as the difference between the infant and neonatal mortality rates

However, it should be noted that the rates presented in Table 6 are derived from retrospective information given by respondents, which is subject to errors of omission and misreporting of date of birth and age at death.

3.6   Maternal Care

The 2013 SLDHS contained a number of questions to capture information on maternal health care for women who had given birth to at least one child in the five years preceding the survey. For the most recent birth in that period, women were asked from whom they had obtained antenatal care during pregnancy and whether they had received a tetanus toxoid injection. For all births in the five years before the survey, mothers were asked who assisted at the delivery and where they gave birth to the child. Finally, questions were asked about postnatal care for the most recent birth. Results are shown in Table 7.

Table 7 shows that in Sierra Leone practically all women (97 percent) received antenatal care from a skilled provider, that is, a doctor, nurse, midwife or a maternal and child health (MCH) aide, during the pregnancy for their most recent birth in the five years preceding the survey. Antenatal coverage varies little by mother's characteristics, and even among women living in rural areas and with no education more than 95 percent received antenatal care from a skilled provider.

Table 7 Maternal care indicators

Among women age 15-49 who had a live birth in the five years preceding the survey, percentage who received antenatal care from a skilled provider for the last live birth and percentage whose last live birth was protected against neonatal tetanus, and among all live births in the five years before the survey, percentage delivered by a skilled provider and percentage delivered in a health facility, by background characteristics, Sierra Leone 2013

Background characteristic	Percentage with antenatal care from a skilled provider[1]	Percentage whose last live birth was protected against neonatal tetanus[2]	Number of women	Percentage delivered by a skilled provider	Percentage delivered in a health facility	Number of births
Mother's age at birth						
<20	98.6	88.2	1,609	64.6	57.4	2,293
20-34	97.1	90.5	5,566	59.9	54.5	8,075
35+	95.4	90.1	1,473	52.5	49.9	1,830
Residence						
Urban	98.2	90.5	2,387	78.9	68.1	3,112
Rural	96.7	89.8	6,260	53.2	49.7	9,087
Region						
Eastern	98.3	93.4	2,054	77.0	72.8	2,958
Northern	95.5	85.9	3,385	41.5	37.1	4,749
Southern	98.2	95.7	1,982	64.0	60.4	2,892
Western	97.7	86.6	1,226	74.2	60.7	1,600
District						
Kailahun	98.7	98.0	602	86.3	84.3	869
Kenema	98.4	92.1	908	82.5	77.3	1,302
Kono	97.6	90.6	544	57.6	52.7	787
Bombali	95.5	91.7	585	45.4	41.4	788
Kambia	93.1	79.4	417	40.6	33.9	596
Koinadugu	90.0	83.1	453	33.0	32.8	653
Port Loko	97.1	87.4	1,122	46.0	39.2	1,590
Tonkolili	97.6	84.5	810	37.8	35.2	1,122
Bo	99.5	98.1	792	76.0	71.9	1,107
Bonthe	96.2	96.9	324	77.2	74.0	463
Moyamba	97.2	92.3	481	36.4	32.7	727
Pujehun	98.5	93.9	385	64.8	62.1	595
Western Area Rural	98.6	93.1	226	63.7	56.7	295
Western Area Urban	97.4	85.1	1,000	76.6	61.6	1,304
Mother's education[3]						
No education	96.3	89.0	5,768	54.2	49.4	8,394
Primary	98.0	90.3	1,203	63.0	57.5	1,725
Secondary or higher	99.2	93.4	1,676	79.3	71.7	2,079
Wealth index quintile						
Poorest	96.0	91.1	1,901	50.9	48.4	2,858
Poorer	96.7	89.2	1,809	52.0	49.8	2,616
Middle	96.7	89.7	1,797	53.2	49.2	2,573
Richer	98.1	90.1	1,694	67.4	60.0	2,300
Richest	98.3	90.0	1,447	83.7	70.1	1,851
Total	97.1	90.0	8,647	59.7	54.4	12,198

[1] Skilled provider includes doctor or nurse/midwife or MCH aide
[2] Includes mothers with two injections during the pregnancy of her last live birth, or two or more injections (the last within 3 years of the last live birth), or three or more injections (the last within 5 years of the last live birth), or four or more injections (the last within ten years of the last live birth), or five or more injections at any time prior to the last live birth

Tetanus toxoid injections are given to women during pregnancy to protect infants from neonatal tetanus, a cause of infant death that is due primarily to unsanitary conditions at childbirth. Full protection is considered to be provided to an infant if the mother received:

- Two injections during the pregnancy of her last birth;
- Two or more injections, the last within three years of the last live birth
- Three or more injections, the last of within five years of the last birth
- Four or more injections, the last within ten years of the last live birth
- Five or more injections at any time prior to the last birth

Ninety percent of women received the number of tetanus toxoid injections required to provide full protection to their most recent birth in the five years preceding the survey. Again, the proportion of births protected from tetanus varies little, remaining close to 90 percent, regardless of the socioeconomic characteristics of the respondents.

3.7   Immunization and Child Health

3.7.1   Immunization of children

Sierra Leone has adopted the World Health Organization guidelines for childhood immunizations that call for all children to receive the following: a BCG vaccination against tuberculosis; three doses of DPT to prevent diphtheria, pertussis, and tetanus; three doses of polio vaccine; and a measles vaccine during the first year of life. In addition to these standard vaccinations, the Ministry of Health has recommended that children receive three doses of the hepatitis B vaccine, with the first dose given at birth or at first clinical contact. The pentavalent vaccine, recently introduced, has replaced the DPT and hepatitis B vaccines, except for the first dose of the hepatitis B vaccine given at birth. The pentavalent vaccine contains, in addition to DPT, the hepatitis B vaccine and a vaccine against *Haemophilus influenzae* type b, or Hib, and is supposed to be given according to the same schedule as DPT.

In the 2013 SLDHS, information on vaccinations was collected for all children born in the five years before the survey. For each of these children, mothers were asked to provide their health card, called an "Under Fives Card" in Sierra Leone. When interviewers could see these health cards, the dates of vaccinations that the child had received were copied from the card onto the questionnaire. If the interviewer did not see the card, either because the respondent did not have one or because she was reluctant to share it with the interviewer, the mother was asked specific questions about whether the child had received each vaccine. The vaccination coverage is based on both the information copied from the health cards and the information obtained from the mothers' reports.

Table 8 presents vaccination information for children age 12-23 months, the age by which it is expected they should have received all vaccinations. Respondents were able to present the interviewer a health card for 73 percent of children. According to the health cards and mothers' reports, slightly more than two thirds (68 percent) of children age 12-23 months have received all of the recommended vaccinations. Practically all children received BCG (96 percent), and 79 percent received the measles vaccine. Also, 78 percent received the three doses of DPT or pentavalent vaccine, and 78 percent received the three doses of the polio vaccine.[1] Only 4% of the children did not receive any type of vaccination.

The percentage of children who were fully immunized was slightly higher in rural areas than in urban areas (69 percent compared with 66 percent). It was also slightly higher among children whose mothers have secondary or higher education than among children whose mothers have no education or only reached primary school.

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[1] On the polio vaccine, mothers were asked whether their children were vaccinated but not the number of doses of polio received. The number of polio doses from the mother's account is approximated by assuming it is equivalent to the number of doses of DPT she reports. Data from vaccination cards corroborate that there is a 98.9 percent correspondence between these two vaccines.

Table 8 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey according to a vaccination card or the mother's report, and percentage with a vaccination card, by background characteristics, Sierra Leone 2013

Background characteristic	BCG	DPT 1	DPT 2	DPT 3	Polio 0[1]	Polio 1	Polio 2	Polio 3	Measles	All basic vaccina-tions[2]	No vaccina-tions	Percent-age with a vaccina-tion card	Number of children
Sex													
Male	95.3	93.6	89.4	77.8	91.9	94.0	89.4	78.1	78.1	68.3	3.8	71.0	1,040
Female	95.8	93.5	88.0	77.9	90.8	94.0	88.0	77.6	79.0	67.8	3.2	75.4	1,129
Residence													
Urban	94.7	93.6	89.9	77.6	91.7	93.3	90.0	77.2	78.5	65.6	4.2	65.0	561
Rural	95.9	93.5	88.2	77.9	91.2	94.2	88.2	78.1	78.6	68.9	3.2	76.2	1,608
Region													
Eastern	98.1	95.3	93.2	84.2	96.3	96.2	93.3	84.8	84.4	77.8	1.6	82.0	566
Northern	94.4	91.9	83.8	72.3	87.8	92.6	83.6	72.3	73.4	62.0	4.4	72.8	858
Southern	96.7	95.8	93.8	86.4	94.9	95.9	94.1	86.2	82.8	75.3	2.7	77.7	444
Western	92.4	91.2	86.4	69.1	87.0	90.8	86.3	68.3	76.3	56.2	5.8	52.1	301
District													
Kailahun	98.3	95.9	95.9	89.0	97.7	97.0	97.0	91.2	91.3	84.7	1.6	92.6	166
Kenema	97.3	95.4	93.6	83.3	95.1	96.0	93.6	83.2	81.5	75.4	2.0	75.5	269
Kono	99.4	94.3	88.9	80.0	96.9	95.5	87.9	80.0	81.5	73.8	0.6	81.7	131
Bombali	95.9	92.6	88.8	84.2	90.3	95.2	88.8	83.4	76.5	68.9	3.9	80.3	136
Kambia	89.4	90.7	75.5	61.1	80.8	86.2	73.2	59.2	74.6	51.7	6.8	56.0	106
Koinadugu	94.9	92.4	85.4	69.9	80.0	94.3	84.9	69.9	74.3	63.6	3.9	76.1	134
Port Loko	94.1	93.0	85.5	74.0	93.1	92.4	85.5	74.5	72.5	65.1	5.2	72.3	277
Tonkolili	96.3	90.4	81.5	69.5	87.8	93.4	81.9	70.2	71.5	57.3	2.6	75.0	205
Bo	98.5	98.5	97.7	93.4	98.5	97.7	97.7	93.2	84.4	82.3	1.5	86.7	168
Bonthe	96.6	97.2	96.3	80.9	92.3	98.2	96.3	80.9	92.5	77.2	0.9	69.9	62
Moyamba	94.5	92.6	88.3	78.7	90.4	93.4	89.0	80.0	78.4	66.4	4.7	63.5	119
Pujehun	96.5	94.1	92.4	87.1	95.7	94.6	92.9	85.0	79.1	72.8	3.5	84.6	96
Western Rural	96.7	96.4	89.6	71.6	92.0	96.4	89.6	71.0	76.7	60.4	3.3	58.4	55
Western Urban	91.4	90.1	85.7	68.5	85.9	89.6	85.6	67.7	76.2	55.2	6.3	50.7	246
Education													
No education	94.3	91.9	86.6	76.0	89.6	92.8	86.7	76.2	77.2	66.9	4.7	73.2	1,423
Primary	98.2	97.3	92.0	80.4	93.7	96.5	91.4	80.0	76.2	65.2	1.2	78.1	313
Secondary or higher	97.7	96.1	92.9	82.1	95.4	96.1	93.2	81.7	84.9	73.8	1.1	70.2	432
Wealth quintile													
Lowest	95.1	91.7	89.6	78.6	90.0	93.0	89.7	78.9	81.4	73.1	4.0	72.1	521
Second	94.1	92.0	86.4	77.3	88.6	93.7	86.5	77.9	77.5	66.3	4.5	77.3	463
Middle	97.2	95.4	87.8	79.1	93.2	95.1	87.0	78.1	76.4	66.8	2.3	77.8	464
Fourth	97.5	96.6	92.7	80.5	96.0	95.1	92.2	80.1	78.4	69.4	2.4	76.7	402
Highest	93.8	92.0	86.7	72.3	89.0	92.8	87.9	72.9	79.0	62.3	4.5	58.8	319
Total	95.6	93.5	88.7	77.9	91.4	94.0	88.6	77.8	78.6	68.0	3.5	73.3	2,169

[1] Polio 0 is the polio vaccination given at birth
[2] BCG, measles, and three doses each of DPT and polio vaccine excluding polio vaccine given at birth

3.7.2   Childhood diseases and treatment

Acute respiratory infection, fever, and dehydration from severe diarrhea are major causes of childhood morbidity and mortality in Sub-Saharan countries. Prompt treatment for children experiencing the symptoms of these illnesses is crucial in minimizing the impact of these illnesses and in reducing child deaths. To obtain information on how childhood illnesses are treated, mothers were asked for each child under age 5 whether in the two weeks before the survey the child had experienced a cough with short, rapid breathing (symptoms of an acute respiratory infection), fever (symptom of malaria), or diarrhea. Among all children under age 5, 5 percent had a cough with short, rapid breathing, 25 percent were reported to have fever, and 11 percent had diarrhea within the two-week period preceding the survey (data not shown). It should be noted that the morbidity data collected may be inaccurate because they are based on the mother's perception of illness with no validation from medical personnel. Also, the prevalence of these illnesses may fluctuate due to seasonality, so these results do not necessarily represent accurate measurements of the prevalence of these diseases.

Table 9 shows the proportions of children with symptoms of an acute respiratory infection (ARI), fever, and diarrhea for whom treatment or advice was sought from a health care provider.

Among children under age 5 who had symptoms of acute respiratory infection (ARI) or who were sick with fever in the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, and among children under age 5 who were sick with diarrhea during the two weeks preceding the survey, percentage for whom treatment was sought from a health facility or provider, percentage given a solution made from oral rehydration salt (ORS) packets or given prepackaged ORS liquids, and percentage given any oral rehydration therapy (ORT), by background characteristics, Sierra Leone 2013

Background characteristic	Children with symptoms of ARI[1]		Children with fever		Children with diarrhea			
	Percentage for whom treatment was sought from a health facility/ provider[2]	Number with ARI	Percentage for whom treatment was sought from a health facility/ provider[2]	Number with fever	Percentage for whom treatment was sought from a health facility/ provider[2]	Percentage given solution from ORS packet[3]	Percentage given any ORT[4]	Number with diarrhea
Age in months								
<6	77.1	48	75.1	201	60.2	65.6	65.6	65
6-11	76.3	99	69.4	376	67.9	84.4	85.2	171
12-23	69.5	152	69.9	706	66.3	87.6	89.0	321
24-35	70.2	83	63.8	570	65.5	85.9	86.7	268
36-47	78.2	74	61.7	493	64.9	86.6	87.8	206
48-59	58.4	57	57.1	406	63.3	85.2	86.7	171
Sex								
Male	70.9	261	67.7	1,360	64.6	85.6	87.0	591
Female	72.5	251	63.5	1,392	66.1	84.5	85.4	610
Residence								
Urban	73.2	100	60.0	744	64.4	86.2	86.6	322
Rural	71.3	412	67.7	2,008	65.7	84.6	86.0	879
Region								
Eastern	85.1	80	75.6	605	76.0	84.7	86.9	240
Northern	65.8	321	63.1	1,148	62.8	82.2	83.5	577
Southern	83.8	60	66.6	650	65.3	89.9	90.3	212
Western	73.2	51	54.2	348	59.3	89.1	89.1	173
District								
Kailahun	(85.1)	31	81.8	197	77.7	76.4	80.3	60
Kenema	*	26	72.6	281	81.7	82.9	83.6	80
Kono	(88.7)	23	72.9	127	70.4	91.0	93.5	100
Bombali	(79.2)	32	83.5	167	75.6	93.0	93.8	83
Kambia	70.8	57	59.5	172	67.0	82.8	83.7	95
Koinadugu	55.3	72	55.0	295	52.5	79.6	79.6	132
Port Loko	64.7	100	61.9	339	58.6	76.4	77.6	177
Tonkolili	(68.6)	59	63.5	175	69.8	87.2	90.8	89
Bo	*	19	66.2	253	81.8	94.9	94.9	67
Bonthe	*	4	81.1	51	71.0	96.4	*	17
Moyamba	*	19	63.7	160	53.5	86.8	86.8	93
Pujehun	(81.6)	18	65.8	186	62.1	85.3	87.7	34
Western Rural	(62.9)	21	71.4	48	56.9	92.0	(92.0)	14
Western Urban	*	30	51.4	300	59.5	88.8	88.8	159
Mother's education[3]								
No education	69.9	358	63.8	1,878	65.2	84.3	85.6	833
Primary	71.7	75	67.2	406	67.8	90.8	90.8	168
Secondary or higher	79.9	79	71.4	468	63.9	83.5	84.4	200
Wealth quintile								
Lowest	67.7	125	65.2	627	63.8	86.8	88.7	267
Second	71.9	118	66.6	580	55.6	86.3	86.9	268
Middle	75.3	125	70.2	564	74.1	82.6	83.1	251
Fourth	70.1	96	67.4	552	66.6	81.9	83.9	235
Highest	75.1	47	56.4	429	68.2	88.0	88.4	181
Total	71.7	512	65.6	2,752	65.3	85.1	86.1	1,201

Note: Results based in 25 -49 unweighted cases are presented in parenthesis; results based on fewer than 25 unweighted cases are not presented (*)
[1] Symptoms of ARI (cough accompanied by short, rapid breathing that was chest-related and/or by difficult breathing that was chest-related) is considered a proxy for pneumonia.
[2] Excludes pharmacy, shop, and traditional practitioner
[3] Includes ORS from packets and prepackaged ORS liquids
[4] Includes ORS from packets, prepackaged ORS liquids, and recommended home fluid

Treatment from a health facility was sought for 72 percent of children with acute respiratory infection, 66 percent of the children with fever, and 65 percent of children with diarrhea. Eighty-five percent of the children who had diarrhea were given fluids prepared from an ORS packet, and 86 percent of children with diarrhea were treated with some form of oral rehydration therapy (ORT), whether it involved a solution prepared from ORS packets or a home-prepared solution.

In general, the proportion of children for whom treatment was sought was more or less the same, regardless of place of residence or the mothers' educational achievement. However, there were significant regional variations in treatment-seeking behavior for children with fever. Treatment was sought for 76 percent of children with fever in the Eastern Region, compared with 54 percent in the Western Region. One possible explanation for this difference could be that fever episodes tend to be more virulent and life-threatening in the Eastern Region due to a higher prevalence of malaria, so parents are more predisposed to seek treatment when their children have fever. The fact that severe anemia among children is three times as high in the Eastern Region as in the Western Region (9 percent compared with 3 percent; Table 12) suggests a higher malaria prevalence in that region.

3.7.3   Infant feeding practices

Breast milk is the primary source of nutrients for young infants. WHO and UNICEF recommend initiation of breastfeeding within the first hour of birth, exclusive breastfeeding for up to six months, and thereafter complementary foods with continued breastfeeding up to age 2 or beyond. Supplementing breast milk with liquids or other foods before the child is age 6 months is discouraged because it increases the likelihood of contamination and hence, the risk of illnesses such as diarrhea. On the other hand, it is important to introduce complementary foods by age 6 months since, at that age, the mother's breast milk no longer provides adequate nutrition for the child.

Table 10 Breastfeeding status by age

Percent distribution of youngest children under age 2 who are living with their mother, by breastfeeding status, and the percentage currently breastfeeding; and the percentage of all children under two years using a bottle with a nipple, according to age in months, Sierra Leone 2013

	Percent distribution of youngest children under age 2 living with their mother, by breastfeeding status										
Age in months	Not breast-feeding	Exclusively breastfed	Breast-feeding and consuming plain water only	Breast-feeding and consuming nonmilk liquids[1]	Breast-feeding and consuming other milk	Breast-feeding and comple-mentary foods	Total	Percentage currently breast-feeding	Number of youngest children under age 2	Percentage using a bottle with a nipple	Number of all children under age 2
0-1	3.1	42.2	30.3	14.3	3.1	6.9	100.0	96.9	320	12.8	332
2-3	3.1	32.2	33.9	16.0	5.7	9.1	100.0	96.9	445	18.5	455
4-5	4.6	24.5	26.2	8.8	5.3	30.7	100.0	95.4	444	19.4	464
6-8	6.0	10.2	16.9	5.0	4.1	57.8	100.0	94.0	606	18.7	618
9-11	8.4	2.5	5.9	3.3	1.6	78.3	100.0	91.6	513	14.9	537
12-17	16.5	1.6	2.9	0.9	0.3	77.7	100.0	83.5	1,238	9.9	1,295
18-23	44.5	0.7	1.4	0.4	0.0	53.1	100.0	55.5	788	6.4	874
0-3	3.1	36.4	32.4	15.3	4.6	8.2	100.0	96.9	766	16.1	787
0-5	3.6	32.0	30.1	12.9	4.9	16.4	100.0	96.4	1,210	17.3	1,251
6-9	6.3	8.7	14.5	4.8	3.7	62.0	100.0	93.7	771	18.0	792
12-15	14.0	1.6	3.6	1.2	0.4	79.1	100.0	86.0	845	10.5	882
12-23	27.4	1.2	2.3	0.7	0.2	68.1	100.0	72.6	2,026	8.5	2,169
20-23	52.1	0.3	1.0	0.5	0.0	46.2	100.0	47.9	464	6.5	521

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfed, breastfeeding and consuming plain water, nonmilk liquids/juice, other milk, and complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus children who receive breast milk and nonmilk liquids and who do not receive other milk and who do not receive complementary foods are classified in the nonmilk liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.
[1] Nonmilk liquids include juice, juice drinks, clear broth, or other liquids.

The 2013 SLDHS collected data on infant feeding for all children born in the five years preceding the survey. Table 10 shows that 96 percent of children under age 6 months were breastfed, but only 32 percent of them were breastfed exclusively. In addition to breastmilk, 30 percent of infants age 0-5 months were given water only, 13 percent were given non-milk liquids or juice, and 5 percent were given other milk while 16 percent received complementary foods. At the age of 6-9 months, 15 percent were given water along with breast milk, 5 percent were breastfed and consumed nonmilk liquids or juice, and 62 percent were breastfed and received complementary foods. Almost 73 percent of children were still breastfed at age 12-23 months. Seventeen percent of children under age 6 months were fed using a bottle

with a nipple, a practice that is discouraged because it is a potential source of contamination and exposes the young children to disease.

3.7.4 *Nutritional status of children*

Anthropometric measurements (height and weight) provide important indicators of children's nutritional status. Inadequate nutrition results from insufficient food intake, repeated exposure to infectious diseases, or a combination of both. It can result in increased risk of illness and death. In the SLDHS, children under age 5 who were listed in the Household Questionnaire were eligible for height and weight measurements. Height was measured using a special board manufactured by Shorr Boards in the United States. Children under age 2 were measured lying down, and those age 2 or older were measured standing up. Electronic Seca scales were used to measure the weight of children. Based on these measurements, three internationally accepted indicators were constructed to reflect the nutritional status of children: height-for-age (stunting), weight-for-height (wasting), and weight-for-age (underweight).

The nutritional status of children is presented as a comparison of the anthropometric results with recently developed child growth standards (WHO, 2006). The use of the WHO child growth standards is based on the finding that well-nourished children for all population groups follow very similar growth patterns before puberty. The internationally-based standard population serves as a point of comparison, facilitating the examination of differences in the anthropometric status of subgroups in a population. In any large population, there are natural variations in height and weight. The variations approximate a normal distribution. Children who fall below minus two standard deviations (-2 SD) from the reference population median are considered malnourished, and children who fall below minus three standard deviations (-3 SD) from the reference median are considered severely malnourished. Each of the three indices measures different aspects of children's nutritional status.

Table 11 shows nutritional status for children under age 5, according to the three anthropometric indices, by background characteristics. Height-for-age is the measure of linear growth. A child who is below minus 2 standard deviations from the reference mean for height-for-age is considered short for his/her age, or stunted, a condition reflecting the cumulative effect of chronic malnutrition. In the 2013 SLDHS survey, 38 percent of children are stunted (below -2 SD), and there is a slightly higher proportion of stunting among males (39 percent) than females (37 percent). Stunting increases with age, peaking at 49 percent for children age 18-23 months. In rural areas, 40 percent of children are stunted, contrasted with 30 percent of children in urban areas. Stunting is highest in the Eastern and Southern Regions (42 percent each) and lowest in the Western Region (29 percent). At the district level, stunting is highest among children in Kono (52 percent) and lowest among children in the Western Rural (28 percent) and Bombali (28 percent). Severe stunting is more prevalent among children whose mothers are not educated or only have primary education (39 percent) compared with children of mothers with secondary or higher education (33 percent).

Table 11 Nutritional status of children

Percentage of children under age 5 classified as malnourished, according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Sierra Leone 2013

	Height-for-age[1]			Weight-for-height				Weight-for-age				
Background characteristic	Percent-age below -3 SD	Percent-age below -2 SD[2]	Mean Z-score (SD)	Percent-age below -3 SD	Percent-age below -2 SD[2]	Percent-age above +2 SD	Mean Z-score (SD)	Percent-age below -3 SD	Percent-age below -2 SD[2]	Percent-age above +2 SD	Mean Z-Score (SD)	Number of children
Age in months												
<6	10.2	19.7	-0.6	4.3	9.7	17.1	0.3	5.1	10.6	7.0	-0.3	394
6-8	8.7	20.8	-0.5	4.7	14.4	8.6	-0.3	4.6	19.6	3.6	-0.7	268
9-11	13.7	31.2	-1.1	7.4	18.1	8.6	-0.4	7.1	23.2	1.7	-1.0	227
12-17	17.0	33.1	-1.1	4.7	13.5	6.1	-0.3	7.8	17.2	3.6	-0.8	557
18-23	19.5	48.9	-1.5	4.3	11.7	7.2	-0.2	5.8	18.1	3.4	-0.8	379
24-35	25.4	46.9	-1.6	4.3	7.4	6.5	0.1	5.7	15.7	3.4	-0.8	982
36-47	19.7	43.5	-1.6	3.2	7.4	5.6	0.1	5.3	17.8	1.1	-0.9	1,180
48-59	17.0	34.5	-1.6	3.2	6.8	7.2	0.0	4.6	14.6	0.4	-0.9	1,108
Sex												
Male	20.2	38.9	-1.4	4.8	10.7	6.9	-0.1	6.1	17.6	2.3	-0.9	2,461
Female	16.6	36.9	-1.3	3.3	8.0	8.0	0.1	5.0	15.4	2.6	-0.8	2,633
Residence												
Urban	11.4	29.6	-1.0	3.8	9.2	8.2	0.0	4.2	12.1	3.6	-0.6	1,170
Rural	20.4	40.3	-1.5	4.1	9.3	7.3	-0.0	6.0	17.7	2.1	-0.9	3,924
Region												
Eastern	22.1	42.2	-1.7	2.2	6.7	7.3	0.1	5.3	16.8	0.7	-0.9	1,183
Northern	16.7	35.4	-1.3	5.1	10.8	5.8	-0.2	6.1	17.9	2.6	-0.9	2,227
Southern	21.0	42.2	-1.5	4.4	9.2	10.3	0.1	5.9	16.1	2.4	-0.8	1,164
Western	11.0	28.9	-0.8	2.6	8.8	8.8	0.1	2.8	10.4	5.8	-0.4	520
District												
Kailahun	16.3	40.7	-1.5	2.1	6.2	3.8	-0.2	6.2	19.7	0.4	-1.1	381
Kenema	20.0	39.4	-1.6	2.6	8.1	6.4	-0.0	6.3	17.6	0.3	-0.9	573
Kono	37.1	51.6	-2.2	1.1	4.3	15.3	0.8	1.2	10.1	2.4	-0.8	228
Bombali	15.1	28.2	-1.1	14.4	25.5	2.6	-0.9	12.5	24.4	1.1	-1.3	382
Kambia	17.9	36.8	-1.2	3.0	6.5	7.2	0.0	5.0	16.9	2.8	-0.7	288
Koinadugu	21.1	40.1	-1.2	4.7	10.5	10.7	-0.1	6.6	24.3	8.6	-0.8	231
Port Loko	14.7	36.6	-1.3	3.8	9.3	6.9	0.0	5.2	15.3	2.2	-0.8	744
Tonkolili	17.8	36.0	-1.4	1.9	5.5	4.0	0.0	3.5	14.8	1.6	-0.8	583
Bo	21.6	45.0	-1.7	5.5	11.9	6.6	-0.1	7.9	21.2	1.2	-1.1	434
Bonthe	19.7	41.4	-1.4	2.1	3.0	22.6	0.8	4.2	9.2	5.2	-0.2	190
Moyamba	17.5	33.6	-1.2	5.7	9.8	11.3	0.1	5.4	11.7	3.1	-0.6	260
Pujehun	24.0	46.4	-1.7	3.1	8.5	6.8	0.1	4.6	16.8	1.7	-0.9	280
Western Rural	15.4	27.6	-0.9	2.7	8.2	11.9	0.3	1.1	10.4	5.8	-0.3	129
Western Urban	9.6	29.4	-0.8	2.6	9.0	7.8	0.0	3.4	10.4	5.7	-0.5	392
Mother's education[3]												
No education	20.0	38.6	-1.4	3.6	9.4	7.8	0.0	6.0	16.8	2.8	-0.8	2,964
Primary	17.1	38.8	-1.4	4.4	10.9	6.2	-0.1	5.2	15.8	1.0	-0.9	590
Secondary or higher	12.1	32.7	-1.2	4.1	8.9	9.1	0.0	3.9	13.8	3.3	-0.7	672
Mother's interview status												
Mother interviewed	18.4	37.8	-1.4	3.8	9.5	7.7	0.0	5.5	16.2	2.6	-0.8	4,111
Mother not interviewed, but in household	17.0	31.5	-1.4	4.1	10.6	9.5	-0.1	5.8	17.3	2.1	-0.9	115
Mother not interviewed, not in household[4]	18.2	38.8	-1.5	5.0	8.3	6.1	-0.0	5.7	17.6	1.6	-0.9	869
Wealth quintile												
Lowest	22.5	42.6	-1.5	3.6	7.7	8.6	0.1	6.2	17.3	2.9	-0.8	1,183
Second	21.1	40.4	-1.6	5.0	10.6	6.0	-0.1	6.9	19.6	0.9	-1.0	1,196
Middle	17.7	38.1	-1.5	4.2	9.7	7.7	0.0	5.3	16.6	2.6	-0.8	1,121
Fourth	16.0	35.0	-1.2	3.5	9.6	7.1	-0.1	5.0	15.5	3.0	-0.7	946
Highest	10.2	28.1	-0.9	3.3	8.5	8.4	0.0	3.0	10.3	3.5	-0.5	648
Total	18.3	37.9	-1.4	4.0	9.3	7.5	-0.0	5.6	16.4	2.4	-0.8	5,094

Note: Table is based on children who spent the night before the interview in the household. Each of the indices is expressed in standard deviation units (SDs) from the median of the WHO Child Growth Standards adopted in 2006. The indices in this table are NOT comparable to those based on the previously used 1977 NCHS/CDC/WHO Reference. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight.
[1] Recumbent length is measured for children under age 2 and less than 85 cm; standing height is measured for all other children.
[2] Includes children who are below -3 standard deviations (SDs) from the WHO Growth Standards population median
[3] For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire.
[4] Includes children whose mothers are deceased

Weight-for-height describes current nutritional status. A child who is below minus two standard deviations from the reference mean for weight-for-height is considered too thin for his/her height, or wasted, a condition reflecting acute or recent nutritional deficit. Overall, 9 percent of the children are wasted, and 4 percent are severely wasted. Slightly more male children are wasted (11 percent) than female

children (8 percent). Stunting among children in Northern Region is higher (11 percent) compared with 7 percent among children in Eastern Region. At the district level, the lowest proportion of children who are wasted is found in Bonthe and Kono (3 percent and 4 percent, respectively), while the highest is found in Bombali (26 percent).

Weight-for-age is a composite index of weight-for-height and height-for-age, and thus does not distinguish between acute malnutrition (wasting) and chronic malnutrition (stunting). A child can be underweight for his/her age because he or she is stunted, wasted, or both. Weight-for-age is an overall indicator of a population's nutritional health. Sixteen percent of all children were underweight, and 6 percent of these children were severely underweight. More males than females were underweight (18 and 15 percent, respectively). Eighteen percent of rural children are underweight compared with 12 percent of urban children. The Northern Region had the highest proportion of underweight children (18 percent), while the lowest proportion was found among children in the Western Region (10 percent). Children born to uneducated mothers were more likely to be underweight (17 percent) compared with children whose mothers have a secondary education (14 percent).

3.7.5 Anemia

Anemia is a condition characterized by a low level of hemoglobin in the blood. Hemoglobin is necessary for transporting oxygen to tissues and organs in the body. Nutritional anemia includes anemia due to deficiency in iron plus deficiencies in folate, vitamins B and B12, and certain trace elements involved with red blood cell production. About half of the global burden of anemia is due to iron deficiency. Iron deficiency, in turn, is largely due to an inadequate dietary intake of bioavailable iron, especially during periods of increased iron requirements, such as pregnancy and infancy, and increased blood loss due to hookworm infestation and infections such as malaria. Anemia in children is associated with impaired mental and physical development and with increased morbidity and mortality. Anemia can be a particularly serious problem for pregnant women, leading to premature delivery and low birth weight.

Hemoglobin testing is the primary method for anemia diagnosis. The 2013 SLDHS included direct measurements of hemoglobin levels for children age 6-59 months, for women age 15-49, and for men age 15-59. Hemoglobin measurements were taken in the field using *HemoCue®* devices. This involved taking a drop of capillary blood from the finger, which was drawn directly into a reagent-coated microcuvette (a blood collection device). The filled microcuvette was inserted into a portable, battery-operated *HemoCue®* photometer. In less than a minute, hemoglobin concentration was indicated on a digital read-out in grams per deciliter.

Table 12 presents the anemia levels for children age 6-59 and for women age 15-49. Levels of anemia were classified as severe, moderate, or mild according to criteria developed by the World Health Organization. Children with <7.0 grams per deciliter (g/dl) of hemoglobin are classified as having severe anemia; those with hemoglobin between 7.0 and 9.9 g/dl are classified as having moderate anemia, and children with hemoglobin between 10.0 and 10.9 g/dl are classified as having mild anemia. Women with <7.0 g/dl are classified as having severe anemia; women with 7.0-9.9 g/dl have moderate anemia, and non-pregnant women with 10.0-11.9 g/dl have mild anemia. Pregnant women with 10.0-10.9 g/dl are also categorized as having mild anemia.

Table 12 Anemia among children and women

Percentage of children age 6-59 months and women age 15-49 years classified as having anemia, by background characteristics, Sierra Leone 2013

Background characteristic	Any anemia	Percentage with anemia			Number
		Mild anemia	Moderate anemia	Severe anemia	
CHILDREN					
Residence					
Urban	72.4	28.6	37.9	6.0	1,274
Rural	82.3	25.9	50.4	6.0	3,963
Region					
Eastern	80.7	24.7	46.8	9.3	1,243
Northern	83.4	25.3	52.0	6.2	2,214
Southern	76.8	27.3	45.9	3.6	1,197
Western	71.3	33.9	34.4	3.0	583
District					
Kailahun	72.5	30.6	38.9	2.9	357
Kenema	77.6	30.8	39.9	6.9	558
Kono	94.9	7.7	67.0	20.2	328
Bombali	70.8	40.1	28.4	2.3	408
Kambia	86.7	21.5	57.5	7.7	286
Koinadugu	91.4	17.5	63.4	10.5	288
Port Loko	83.9	22.2	55.3	6.4	688
Tonkolili	86.4	24.3	56.4	5.7	546
Bo	67.2	20.0	43.7	3.5	439
Bonthe	79.4	36.2	41.8	1.4	238
Moyamba	85.4	26.3	53.7	5.3	254
Pujehun	82.1	32.4	45.6	4.2	266
Western Rural	80.0	29.4	47.2	3.4	129
Western Urban	68.9	35.2	30.8	3.0	454
Wealth quintile					
Lowest	80.9	25.5	49.2	6.2	1,244
Second	82.3	26.0	49.6	6.8	1,202
Middle	83.3	25.7	52.0	5.7	1,121
Fourth	79.4	27.2	46.4	5.9	960
Highest	69.4	30.0	34.6	4.9	711
Total	79.9	26.6	47.4	6.0	5,238
WOMEN					
Residence					
Urban	36.8	29.4	7.0	0.5	2,823
Rural	49.2	37.3	11.3	0.6	5,047
Region					
Eastern	44.2	33.2	10.3	0.7	1,667
Northern	50.0	37.6	11.8	0.6	3,006
Southern	49.2	39.1	9.5	0.5	1,648
Western	30.7	25.0	5.3	0.4	1,550
District					
Kailahun	41.2	32.4	8.0	0.9	454
Kenema	46.4	33.7	11.6	1.0	804
Kono	43.2	32.9	10.2	0.1	409
Bombali	51.3	39.2	11.7	0.4	657
Kambia	45.1	37.2	7.6	0.3	344
Koinadugu	48.4	37.7	9.3	1.4	331
Port Loko	46.1	35.4	9.8	0.9	964
Tonkolili	57.0	39.2	17.8	0.0	710
Bo	37.9	30.6	6.9	0.5	666
Bonthe	65.5	56.5	8.6	0.3	301
Moyamba	39.9	31.6	8.0	0.3	385
Pujehun	69.9	50.3	18.4	1.2	296
Western Rural	37.0	27.8	9.0	0.2	264
Western Urban	29.4	24.4	4.5	0.5	1,285
Wealth quintile					
Lowest	50.7	39.4	10.8	0.5	1,420
Second	48.7	36.6	11.3	0.8	1,502
Middle	48.3	36.5	11.2	0.6	1,513
Fourth	45.2	34.3	10.2	0.7	1,544
Highest	34.1	27.6	6.1	0.4	1,891
Total	44.8	34.5	9.7	0.6	7,870

Note: Table is based on children and women who stayed in the household the night before the interview. Prevalence of anemia, based on hemoglobin levels, is adjusted for altitude (for children and women) and smoking (for women) using CDC formulas (CDC, 1998). Women and children with <7.0 g/dl of hemoglobin have severe anemia, women and children with 7.0-9.9 g/dl have moderate anemia, and non-pregnant women with 10.0-11.9 g/dl and children and pregnant women with 10.0-10.9 g/dl have mild anemia.

Anemia was very common among children and women in Sierra Leone. Eighty percent of all children age 6-59 months were found to be anemic; 27 percent had mild anemia, 47 percent had moderate anemia, and 6 percent had severe anemia. Children in Kono were more likely to be anemic (95 percent) than children in Western Urban district (69 percent).

Among women, the prevalence of anemia was 49 percent. Almost 35 percent suffered from mild anemia, 10 percent had moderate anemia, and one percent had severe anemia. At district level, prevalence of anemia among women was lowest in Western Urban (29 percent) and highest in Pujehun (70 percent).

3.8   Malaria

Malaria is one of the leading causes of death in malaria-endemic countries. The 2013 SLDHS collected data on measures to prevent malaria including the use of mosquito nets among women and children, prophylactic use of antimalarial drugs, and prompt treatment among children. The 2013 SLDHS captured information on utilization of insecticide-treated mosquito nets (ITNs), indoor residual spraying (IRS), use of intermittent preventive treatment (IPT) during pregnancies, and treatment of children under age 5 with malaria symptoms.

3.8.1   Ownership and use of mosquito nets

Insecticide-treated mosquito nets can be common mosquito nets that were soaked and impregnated with insecticide after purchase, pretreated nets impregnated after manufacturing (ITNs), or long-lasting insecticide treated nets (LLINs), whose threads were treated prior to the manufacturing of the net so that they do not require additional treatment. Insecticide-treated nets are considered effective if they were obtained in the last 12 months or had been re-impregnated in the 12 months preceding the survey. Likewise, common mosquito nets soaked in insecticide after purchase are considered ITNs only if they were impregnated in the 12 months preceding the survey. The Household Questionnaire used in the SLDHS included a number of questions to ascertain the nets' type and brand. Interviewers were instructed to observe the nets, if the respondent allowed. The observation and information offered by the respondent were used to classify the mosquito nets as treated or untreated. Table 13 shows 64 percent of all households own at least one ITN. Ownership of an ITN is higher in rural areas (68 percent) than in urban areas (58 percent).

Table 13 shows that half of the children under age 5 slept under an ITN the night before the survey. Although in urban areas 40 percent of children slept under an ITN the night before the survey, the proportion was higher in rural areas (52 percent). Overall, 53 percent of pregnant women 15-49 slept under an ITN the night before the survey, 42 percent in urban areas and 57 percent in rural areas.

3.8.2   Indoor residual spraying

Indoor residual spraying (IRS) is the spraying of the walls inside dwellings with insecticide, which reduces transmission of malaria by killing the female adult mosquitoes when they rest on the walls after feeding. The results show that IRS is not common in Sierra Leone, as only 5 percent of the households were sprayed with IRS in the 12 months preceding the survey. IRS was slightly higher in urban areas (6 percent) than in rural areas (4 percent). Overall, 52 percent of children age under 5 and 55 percent of pregnant women were protected from mosquitoes because the night before the interview they slept under an ITN or in a household sprayed with IRS in the past 12 months.

Table 13 Malaria indicators

Possession and use of mosquito nets, preventive malaria treatment during pregnancy, and treatment of children with fever using antimalarial drugs, by urban-rural residence, Sierra Leone 2013

	Residence					
	Urban		Rural		Total	
Malaria indicators	Percentage	Number	Percentage	Number	Percentage	Number
Mosquito nets						
Percentage of households with at least one mosquito net (treated or untreated)	58.3	3,993	68.3	8,636	65.2	12,629
Percentage of households with at least one insecticide-treated net (ITN)[1]	57.7	3,993	67.6	8,636	64.4	12,629
Percentage of children under age 5 who slept under a mosquito net (treated or untreated) last night	40.5	3,039	52.7	9,285	49.7	12,323
Percentage of children under age 5 who slept under an ITN last night[1]	40.1	3,039	52.2	9,285	49.2	12,323
Percentage of children under age 5 who slept under an ITN last night in households with an ITN [1]	66.4	1,834	75.2	6,440	73.3	8,274
Percentage of pregnant women age 15-49 who slept under a mosquito net (treated or untreated) last night	42.2	349	57.5	1,086	53.8	1,436
Percentage of pregnant women age 15-49 who slept under an ITN last night[1]	41.5	349	56.8	1,086	53.1	1,436
Percentage of pregnant women age 15-49 who slept under an ITN last night in households with an ITN[1]	66.0	220	82.3	750	78.6	970
Indoor residual insecticide spraying (IRS)						
Percentage of households sprayed with a residual insecticide in the last 12 months	5.7	3,993	4.4	8,636	4.8	12,629
Percentage of children under age 5 who slept under an ITN last night or in household sprayed with IRS in the past 12 months[1]	43.3	3,039	54.3	9,285	51.6	12,323
Percentage of pregnant women who slept under an ITN last night or in a household sprayed with IRS in the past 12 months[1]	44.0	349	58.0	1,086	54.6	1,436
Preventive malaria treatment during pregnancy						
Percentage of last births in the two years preceding the survey for which the mother took antimalarial drugs for prevention during the pregnancy	87.5	1,264	81.7	3,556	83.2	4,820
Percentage of last births in the two years preceding the survey for which the mother got Intermittent Preventive Treatment (IPT) during an antenatal visit[2]	47.5	1,264	44.2	3,556	45.1	4,820
Treatment of fever						
Proportion of children under 5 with fever in the two weeks preceding the survey	27.6	2,800	24.7	8,014	25.4	10,814
Among children under age 5 with fever in the two weeks preceding the survey, percentage who took:						
Any antimalarial drug	45.1	772	49.6	1,980	48.3	2,752
SP/Fansidar	4.0	772	2.8	1,980	3.1	2,752
Chloroquine	4.9	772	4.3	1,980	4.5	2,752
Artesunate	3.3	772	3.2	1,980	3.2	2,752
Quinine	1.2	772	0.4	1,980	0.7	2,752
Combination with artemisinin	33.7	772	38.6	1,980	37.2	2,752
Other antimalarial	1.3	772	1.5	1,980	1.4	2,752
Among children under age 5 with fever in the two weeks preceding the survey, percentage who took on the same day/next day after developing fever:						
Any antimalarial drug	31.3	772	37.7	1,980	35.9	2,752
SP/Fansidar	2.0	772	2.4	1,980	2.3	2,752
Chloroquine	3.9	772	3.6	1,980	3.7	2,752
Artesunate	2.4	772	2.6	1,980	2.5	2,752
Quinine	0.9	772	0.3	1,980	0.4	2,752
Combination with artemisinin	23.0	772	28.7	1,980	27.1	2,752
Other antimalarial	0.4	772	0.9	1,980	0.8	2,752

[1] An Insecticide-Treated Net (ITN) is a permanent net that does not require any treatment, a pretreated net obtained within the last 12 months, or a net that has been soaked with insecticide within the past 12 months.
[2] Intermittent Preventive Treatment is preventive treatment with at least two doses of PS/Fansidar during an antenatal visit.

3.8.3 Preventive malaria treatment during pregnancy

Prophylactic treatment with sulfadoxine/pyrimethamine (SP) can significantly diminish the symptoms and the consequences of malaria among pregnant women who become infected. Information on the use of intermittent preventive treatment (IPT) was obtained by asking women who had given birth in the two years preceding the survey if they had taken preventive antimalarial medication during the last pregnancy. Women reported taking SP/Fansidar twice, and those taking it at least once during an antenatal visit were considered to have received IPT. Table 13 shows that 45 percent of women who gave birth in the two-year period preceding the survey received IPT. The data show that 48 percent of women in urban areas and 44 percent of women in rural areas received IPT. The results also show that 83 percent of women that gave birth in the past two years took preventive malarial medication, either SP/Fansidar or other types of antimalarials.

3.8.4 Malaria treatment for children with fever

Fever is the main symptom of malaria among children under age 5, even though its occurrence may be related to other illnesses. Delays in treating children can have serious consequences, especially in cases of severe infection, so it is recommended that children be treated with antimalarials within the first 24 hours of the onset of fever. Therapies that combine artemisinin with another antimalarial drug—known as artemisinin combination therapy (ACT)—are the preferred treatment for malaria because they are both effective and well tolerated in patients. The results show that 48 percent of children who had fever in the two weeks preceding the survey received an antimalarial drug. Regarding the recommended ACT treatment, 37 percent received ACT therapy. In urban areas, 34 percent of children who had fever in the past 2 weeks received ACT, which was a lower percentage than for rural areas (39 percent). The data also show that 23 percent of children in urban areas and 29 percent in rural areas received ACT the same day or the next day after the onset of fever, as recommended.

3.9 HIV/AIDS

3.9.1 Knowledge of HIV/AIDS

The 2013 SLDHS included a series of questions that inquired about men's and women's knowledge of AIDS, and their awareness of modes of transmission of the human immunodeficiency virus (HIV) that causes AIDS. The results, presented in Table 14, show that knowledge about HIV and AIDS is high in Sierra Leone. Knowledge about HIV and AIDS is slightly higher among men than women (96 versus 94 percent). Awareness is higher in urban areas and among those with secondary or higher education. The results show that 91 percent of uneducated women are aware of HIV and AIDS, which is a lower percentage than for women with secondary education or higher (99 percent). Knowledge among women was highest in the Western Urban and Western Rural districts (99 percent each) and lowest in Koinadugu (73 percent). Among men, HIV and AIDS knowledge is highest in Western Rural (100 percent) and lowest in Koinadugu (85 percent).

Table 14 Knowledge of AIDS

Percentage of women and men who have heard of AIDS, by background characteristics, Sierra Leone 2013

	Women		Men	
Background characteristic	Have heard of AIDS	Number of women	Have heard of AIDS	Number of men
Age				
15-24	94.6	6,561	95.3	2,481
15-19	94.4	3,878	93.6	1,475
20-24	94.9	2,683	97.7	1,007
25-29	94.1	2,843	97.7	1,017
30-39	93.7	4,547	96.7	1,764
40-49	92.3	2,707	96.7	1,319
Marital status				
Never married	96.6	4,730	95.7	2,849
Ever had sex	98.1	3,273	98.2	1,913
Never had sex	93.2	1,458	90.8	936
Married or living together	92.5	10,903	96.8	3,514
Divorced/separated/ widowed	95.9	1,025	96.5	219
Residence				
Urban	98.5	5,933	98.1	2,508
Rural	91.4	10,725	95.3	4,073
Region				
Eastern	93.5	3,614	95.7	1,442
Northern	90.9	6,292	95.6	2,300
Southern	95.0	3,514	95.7	1,414
Western	99.1	3,238	98.8	1,425
District				
Kailahun	92.6	984	99.2	371
Kenema	94.3	1,651	92.9	719
Kono	93.0	979	97.9	352
Bombali	90.6	1,377	93.9	499
Kambia	94.9	738	96.7	270
Koinadugu	73.2	719	84.5	268
Port Loko	92.0	1,994	97.8	679
Tonkolili	96.5	1,464	98.9	584
Bo	95.7	1,398	97.4	533
Bonthe	97.4	678	95.2	283
Moyamba	90.4	843	94.5	368
Pujehun	96.9	595	94.3	230
Western Rural	99.4	528	99.8	230
Western Urban	99.0	2,710	98.6	1,195
Education				
No education	91.1	9,293	94.0	2,651
Primary	94.0	2,331	94.5	825
Secondary or higher	99.0	5,034	98.8	3,106
Wealth quintile				
Lowest	91.6	3,089	93.4	1,218
Second	89.4	3,046	94.6	1,175
Middle	92.3	3,140	95.5	1,195
Fourth	95.3	3,388	98.1	1,183
Highest	99.2	3,994	98.9	1,811
Total 15-49	93.9	16,658	96.3	6,582
Men 50-59	-	0	95.4	680
Total 15-59	-	0	96.2	7,262

na = Not applicable

3.9.2 *Awareness of ways to prevent HIV/AIDS*

Table 15 shows that 68 percent of women and 79 percent of men age 15-49 know that consistent use of condoms is a means of preventing the spread of HIV; 75 percent of women and 83 percent of men know that limiting sexual intercourse to one faithful and uninfected partner can reduce the chances of contracting HIV. While 74 percent of men know that both using condoms and limiting sexual intercourse to one faithful and uninfected partner can reduce the chance of being infected with HIV, the proportion is lower for women (63 percent).

Table 15 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting the AIDS virus by using condoms every time they have sexual intercourse and by having one partner who is not infected and has no other partners, by background characteristics, Sierra Leone 2013

	Percentage of women who say HIV can be prevented by:				Percentage of men who say HIV can be prevented by:			
Background characteristic	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of women	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of men
Age								
15-24	70.7	77.6	66.3	6,561	78.4	81.0	73.1	2,481
15-19	68.3	76.1	64.3	3,878	76.2	78.7	71.0	1,475
20-24	74.1	79.7	69.3	2,683	81.7	84.4	76.2	1,007
25-29	69.6	75.3	64.6	2,843	82.9	88.3	79.1	1,017
30-39	65.7	74.2	61.3	4,547	78.4	81.1	73.4	1,764
40-49	61.7	72.0	57.7	2,707	77.5	82.8	73.8	1,319
Marital status								
Never married	73.3	80.1	69.4	4,730	79.3	81.9	74.3	2,849
Ever had sex	80.0	85.5	76.1	3,273	84.0	85.7	78.9	1,913
Never had sex	58.2	67.8	54.4	1,458	69.7	74.1	64.9	936
Married or living together	64.8	72.8	60.2	10,903	78.7	83.0	74.3	3,514
Divorced/separated/ widowed	71.9	81.0	67.7	1,025	77.5	82.6	73.7	219
Residence								
Urban	76.9	82.4	72.0	5,933	80.7	83.3	75.4	2,508
Rural	62.6	71.5	58.4	10,725	77.8	82.0	73.5	4,073
Region								
Eastern	58.1	66.8	54.0	3,614	74.2	77.4	68.8	1,442
Northern	69.2	75.3	64.5	6,292	78.2	81.3	73.7	2,300
Southern	60.4	71.8	56.2	3,514	76.4	82.5	72.5	1,414
Western	83.2	88.9	78.9	3,238	87.3	89.7	82.5	1,425
District								
Kailahun	43.5	63.7	40.8	984	90.5	93.3	87.8	371
Kenema	56.2	59.2	50.7	1,651	63.1	69.0	58.6	719
Kono	76.0	82.8	72.7	979	79.9	77.9	69.5	352
Bombali	74.6	82.4	71.8	1,377	65.7	67.3	59.6	499
Kambia	64.9	69.5	59.9	738	81.4	86.6	78.0	270
Koinadugu	45.7	59.4	44.1	719	73.7	78.9	72.3	268
Port Loko	74.8	76.9	68.4	1,994	83.7	89.5	81.3	679
Tonkolili	70.4	77.2	64.8	1,464	83.0	82.2	75.6	584
Bo	47.8	63.2	43.7	1,398	83.1	83.4	78.3	533
Bonthe	86.4	91.7	84.5	678	49.2	77.4	46.6	283
Moyamba	50.0	68.3	46.0	843	86.1	87.3	82.7	368
Pujehun	75.3	74.3	67.6	595	78.7	79.2	74.4	230
Western Rural	87.8	91.2	86.1	528	86.6	84.7	81.5	230
Western Urban	82.3	88.5	77.5	2,710	87.5	90.6	82.7	1,195
Education								
No education	60.9	69.7	56.4	9,293	72.2	77.6	67.6	2,651
Primary	67.4	75.7	63.4	2,331	73.8	76.8	67.4	825
Secondary or higher	80.3	85.7	76.0	5,034	86.0	88.3	81.8	3,106
Wealth quintile								
Lowest	60.7	70.6	57.0	3,089	72.0	77.6	67.1	1,218
Second	59.5	70.2	55.7	3,046	76.2	79.7	71.4	1,175
Middle	63.8	71.0	58.5	3,140	80.7	85.0	77.0	1,195
Fourth	70.1	76.5	65.7	3,388	79.6	82.2	74.8	1,183
Highest	80.3	85.4	75.6	3,994	83.7	86.3	78.8	1,811
Total 15-49	67.7	75.4	63.3	16,658	78.9	82.5	74.3	6,582
Men 50-59	-	-	-	0	71.9	78.3	66.8	680
Total 15-59	-	-	-	0	78.3	82.1	73.6	7,262

na = Not applicable
[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

Women who have never been married and have never had sex are least likely to know that using condoms and limiting sexual intercourse to one uninfected partner reduces the risk of HIV transmission (54 percent). Women who have never been married but have had sex are most likely to know that using condoms and limiting sexual intercourse to one uninfected partner reduces the risk of HIV transmission (76 percent). Among men, those who have never been married and have never had sex are least likely to be aware that using condoms and limiting sexual intercourse to one uninfected partner reduces the risk of HIV

transmission (65 percent). On the other hand, men who have never been married, but have had sex are most likely to be aware of these prevention methods (79 percent).

Overall, women residing in urban areas are more likely to be knowledgeable about HIV prevention methods than their counterparts residing in rural areas. The same pattern is true for men though the difference is smaller for them. Greater differentials are observed in knowledge of prevention methods by district. High educational attainment is positively associated with increased awareness of HIV prevention methods both for men and women.

3.9.3   Multiple sexual partnerships and condom use

Most HIV infections in adults are contracted through heterosexual contact; therefore, information on sexual behavior is important in designing and monitoring intervention programs to control the spread of the infection. In the context of HIV/AIDS prevention, limiting the number of sexual partners and having protected sex are crucial to combating the epidemic.

The 2013 SLDHS included questions on respondents' sexual partners during the 12-month period preceding the survey. Information on the use of condoms at the last sexual encounter was also collected. Finally, women and men who had initiated sexual activity were asked the total number of sexual partners in their lifetime. The results are shown in Table 16.1 for women and Table 16.2 for men.

Overall, 6 percent of women reported that they had two or more partners in the last 12 months. Among women who had two or more partners in the last 12 months, only 5 percent reported using a condom at the last sexual intercourse. Among all female respondents who have ever had sexual intercourse, the mean number of partners in their lifetime is 2.5.

Reporting multiple sexual partners is more common among men, as 25 percent of men age 15-49 reported that they had two or more partners in the last 12 months. Among men who had two or more partners in the last 12 months, only 13 percent reported using a condom at the last sexual intercourse. Among all male respondents who have ever had sexual intercourse, the mean number of partners in their lifetime is 6.6.

A higher proportion of men in urban areas (29 percent) than in rural areas (23 percent) had two or more sexual partners in the preceding 12 months. Seven percent of men in urban areas and 20 percent of men in rural areas who had two or more sexual partners reported using a condom at their last sexual encounter. Among the regions, 22 percent of men in the Western region who had two or more sexual partners in the past 12 months used a condom at last sex compared with 8 percent for the Northern region. Four percent of men with no education used a condom at the last sexual encounter with a non-cohabiting partner, while among men with secondary education or higher this proportion was 19 percent.

Table 16.1 Multiple sexual partners in the past 12 months: Women

Among all women age 15-49, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and among women who ever had sexual intercourse, the mean number of sexual partners over the woman's lifetime, by background characteristics, Sierra Leone 2013

Background characteristic	All women		Among women who had 2+ partners in the past 12 months:		Among women who ever had sexual intercourse[1]:	
	Percentage who had 2+ partners in the past 12 months	Number of women	Percentage who reported using a condom during last sexual intercourse	Number of women	Mean number of sexual partners in lifetime	Number of women
Age						
15-24	6.2	6,561	5.9	407	2.1	5,019
15-19	5.2	3,878	9.7	204	1.8	2,462
20-24	7.6	2,683	2.1	204	2.4	2,557
25-29	7.2	2,843	4.9	204	2.6	2,768
30-39	5.7	4,547	3.7	260	2.8	4,402
40-49	4.4	2,707	2.1	120	2.8	2,611
Marital status						
Never married	8.4	4,730	8.3	399	2.4	3,210
Married/living together	4.8	10,903	1.7	521	2.5	10,632
Divorced/separated/ widowed	7.0	1,025	5.6	72	3.3	958
Residence						
Urban	7.4	5,933	5.5	440	2.8	5,039
Rural	5.1	10,725	4.0	552	2.4	9,762
Region						
Eastern	5.9	3,614	5.9	215	2.8	3,190
Northern	3.9	6,292	4.8	246	2.2	5,762
Southern	8.8	3,514	2.1	310	2.6	3,136
Western	6.8	3,238	6.8	221	2.9	2,712
District						
Kailahun	7.1	984	0.0	70	2.8	923
Kenema	6.6	1,651	7.9	109	3.1	1,428
Kono	3.6	979	11.8	35	2.3	838
Bombali	3.3	1,377	0.0	45	1.9	1,237
Kambia	1.5	738	15.9	11	2.1	678
Koinadugu	3.3	719	6.0	24	1.8	642
Port Loko	4.2	1,994	0.0	83	2.3	1,847
Tonkolili	5.6	1,464	10.6	82	2.4	1,358
Bo	13.8	1,398	1.6	192	2.9	1,184
Bonthe	4.7	678	2.0	32	2.2	605
Moyamba	2.3	843	3.4	19	2.1	783
Pujehun	11.2	595	2.9	67	2.9	564
Western Rural	5.2	528	4.9	27	3.1	468
Western Urban	7.2	2,710	7.1	194	2.9	2,244
Education						
No education	4.8	9,293	4.1	443	2.5	8,873
Primary	6.0	2,331	1.1	139	2.7	1,861
Secondary or higher	8.1	5,034	6.4	409	2.6	4,066
Wealth quintile						
Lowest	4.2	3,089	4.9	130	2.3	2,825
Second	5.1	3,046	5.8	154	2.4	2,775
Middle	5.4	3,140	3.0	171	2.3	2,870
Fourth	7.0	3,388	2.8	236	2.6	2,987
Highest	7.5	3,994	6.4	300	2.9	3,343
Total	6.0	16,658	4.7	992	2.5	14,800

[1] Means are calculated excluding respondents who gave non-numeric responses.

Table 16.2 Multiple sexual partners in the past 12 months: Men

Among all men age 15-49, the percentage who had sexual intercourse with more than one sexual partner; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and among men who ever had sexual intercourse, the mean number of sexual partners over the man's lifetime, by background characteristics, Sierra Leone 2013

Background characteristic	All men		Among men who had 2+ partners in the past 12 months:		Among men who ever had sexual intercourse[1]:	
	Percentage who had 2+ partners in the past 12 months	Number of men	Percentage who reported using a condom during last sexual intercourse	Number of men	Mean number of sexual partners in lifetime	Number of men
Age						
15-24	15.7	2,481	20.9	389	4.4	1,449
15-19	8.2	1,475	23.5	121	2.8	630
20-24	26.6	1,007	19.8	267	5.7	819
25-29	30.6	1,017	19.3	312	6.4	866
30-39	31.9	1,764	10.6	564	7.9	1,368
40-49	30.6	1,319	2.0	403	8.2	1,069
Marital status						
Never married	19.5	2,849	25.6	554	5.4	1,714
Married/living together	30.4	3,514	5.5	1,068	7.3	2,856
Divorced/separated/ widowed	20.3	219	19.2	44	7.6	181
Residence						
Urban	29.0	2,508	19.9	728	7.2	1,646
Rural	23.1	4,073	6.9	939	6.3	3,106
Region						
Eastern	26.6	1,442	8.6	384	7.2	1,107
Northern	21.8	2,300	8.1	502	5.9	1,758
Southern	23.6	1,414	11.6	334	6.8	1,006
Western	31.4	1,425	21.6	447	7.2	881
District						
Kailahun	20.2	371	4.9	75	5.6	298
Kenema	36.6	719	9.7	263	8.1	549
Kono	13.0	352	8.8	46	6.9	260
Bombali	21.2	499	5.8	106	4.4	373
Kambia	14.3	270	8.6	39	4.9	196
Koinadugu	26.0	268	15.5	70	2.5	222
Port Loko	19.2	679	5.7	130	6.6	478
Tonkolili	27.1	584	8.4	158	8.4	488
Bo	21.8	533	12.0	116	5.5	337
Bonthe	5.7	283	4.0	16	4.0	182
Moyamba	21.8	368	13.2	80	7.6	282
Pujehun	52.7	230	11.0	121	10.2	205
Western Rural	35.3	230	5.5	81	6.0	153
Western Urban	30.6	1,195	25.2	366	7.4	728
Education						
No education	23.6	2,651	4.4	627	6.7	2,112
Primary	20.8	825	10.5	171	6.4	524
Secondary or higher	28.0	3,106	18.9	869	6.6	2,116
Wealth quintile						
Lowest	22.1	1,218	7.4	269	6.3	934
Second	22.1	1,175	4.6	260	6.4	912
Middle	23.3	1,195	6.9	279	6.1	874
Fourth	26.2	1,183	10.6	309	6.6	853
Highest	30.4	1,811	22.8	550	7.5	1,179
Total 15-49	25.3	6,582	12.6	1,667	6.6	4,752
Men 50-59	32.5	680	4.5	221	7.9	524
Total 15-59	26.0	7,262	11.6	1,888	6.8	5,275

[1] Means are calculated excluding respondents who gave non-numeric responses.

3.9.4 Female genital cutting

Female genital cutting (FGC), also known as female genital mutilation or female circumcision is practiced in Sierra Leone as in other West African countries. The 2013 SDHS collected information from all women age 15-49 on knowledge, attitudes, and experience of FGC, including attitudes towards FGC. Information was also collected from men age 15-59 on knowledge and attitudes.

Knowledge about FGC is universal in Sierra Leone: 100 percent of women and 99 percent of men have heard of this practice. As to the prevalence of this practice, Table 17 shows that 90 percent have undergone some form of circumcision: 75 percent had some flesh cut and removed, 9 percent were sewn closed, and less than 1 percent was cut without any skin removal. In 15 percent of the cases, women did not provide details as to what type of circumcision they had. More women in rural areas (94 percent) had been circumcised than in urban areas (81 percent). The results also show that FGC was highest in the Northern Region (96 percent) and lowest in the Western Region (76 percent). Circumcision was also more prevalent among older women, as 98 percent of women age 45-49 are circumcised compared with 74 percent of women age 15-19.

Table 17 Prevalence of female circumcision

Percentage of women 15-49 circumcised and percent distribution of circumcised women by type of circumcision, according to background characteristics, Sierra Leone 2013

Background characteristic	Percentage of women circumcised	Number of women	Type of circumcision				Total	Number of circumcised women
			Cut, no flesh removed	Cut, flesh removed	Sewn closed	Don't know/ missing		
Age								
15-19	74.3	3,878	0.5	74.8	10.1	14.6	100.0	2,881
20-24	87.5	2,683	0.6	76.5	8.9	13.9	100.0	2,349
25-29	93.2	2,843	0.4	77.4	8.8	13.5	100.0	2,651
30-34	95.8	2,287	0.4	74.8	8.3	16.5	100.0	2,191
35-39	97.5	2,260	0.7	74.3	9.3	15.8	100.0	2,204
40-44	97.4	1,362	0.4	71.8	9.6	18.2	100.0	1,327
45-49	97.8	1,344	0.5	75.0	7.2	17.4	100.0	1,315
Religion								
Christian	77.9	3,527	0.5	72.0	11.6	15.9	100.0	2,747
Islam	92.7	13,032	0.5	75.9	8.4	15.2	100.0	12,077
Other	(95.8)	41	(3.0)	(73.0)	(10.0)	(14.0)	100.0	39
None	-	12	-	-	-	-	100.0	12
Missing	(91.5)	46	(2.9)	(65.0)	(13.9)	(18.1)	100.0	42
Residence								
Urban	80.9	5,933	0.4	74.9	9.4	15.2	100.0	4,798
Rural	94.3	10,725	0.5	75.3	8.8	15.4	100.0	10,119
Region								
Eastern	91.3	3,614	0.5	71.2	6.7	21.6	100.0	3,299
Northern	96.3	6,292	0.4	76.8	6.9	15.8	100.0	6,056
Southern	88.6	3,514	0.6	78.3	12.3	8.8	100.0	3,114
Western	75.6	3,238	0.6	72.5	12.9	14.0	100.0	2,448
District								
Kailahun	92.6	984	0.4	85.4	13.4	0.8	100.0	912
Kenema	92.0	1,651	0.1	58.3	0.9	40.7	100.0	1,518
Kono	88.8	979	1.3	78.9	9.8	10.0	100.0	869
Bombali	96.1	1,377	0.1	52.3	0.7	46.9	100.0	1,324
Kambia	97.1	738	1.0	83.2	8.8	7.0	100.0	717
Koinadugu	95.8	719	0.6	74.8	5.5	19.1	100.0	689
Port Loko	96.0	1,994	0.6	83.7	11.9	3.8	100.0	1,915
Tonkolili	96.5	1,464	0.1	88.3	5.7	5.9	100.0	1,412
Bo	89.3	1,398	0.0	80.5	2.2	17.4	100.0	1,248
Bonthe	84.5	678	0.2	72.1	25.3	2.4	100.0	573
Moyamba	90.1	843	2.2	66.8	26.2	4.9	100.0	759
Pujehun	89.6	595	0.1	96.5	2.3	1.0	100.0	534
Western Rural	83.4	528	0.6	77.4	5.4	16.6	100.0	441
Western Urban	74.1	2,710	0.6	71.5	14.6	13.4	100.0	2,007
Education								
No education	96.9	9,293	0.5	74.3	8.8	16.4	100.0	9,002
Primary	87.3	2,331	0.5	78.8	8.8	11.9	100.0	2,035
Secondary or higher	77.1	5,034	0.4	75.4	9.5	14.7	100.0	3,880
Wealth quintile								
Lowest	94.8	3,089	0.4	72.2	9.5	17.9	100.0	2,928
Second	94.5	3,046	0.5	74.4	9.2	15.9	100.0	2,879
Middle	94.9	3,140	0.5	75.9	8.9	14.8	100.0	2,979
Fourth	90.3	3,388	0.6	79.0	7.5	12.8	100.0	3,058
Highest	76.9	3,994	0.5	74.3	9.9	15.3	100.0	3,074
Total	89.6	16,658	0.5	75.2	9.0	15.3	100.0	14,917

Women who are more educated and who belong to a higher socioeconomic stratum were less likely to have been circumcised: 77 percent of women with a secondary education or more were circumcised, compared with 97 percent of women without education. Similarly, 77 percent of women in the highest wealth quintile were circumcised d with 95 percent of women in the lowest quintiles.

REFERENCES

World Health Organization (WHO) Multicentre Growth Reference Study Group. 2006. *WHO Child Growth Standards: Length/Height-for-Age, Weight-for-Length, Weight-for-Height, and Body Mass Index-for-Age: Methods and Development.* Geneva, Switzerland: WHO.